

# Work Order ID 60556

Wednesday, July 14, 2010 8:24:24 AM



Page 1

Item ID: D212-664-201

Accept

Revision ID:

Setup

Start



Item Name: Crosstube Aft

Stop



Start Date: 7/14/2010 Start Qty: 1.00



Required Date: 7/22/2010 Req'd Qty: 1.00



Reference:

Cust Item ID:

Customer:

Approvals: Process Plan:

Date: 10-5-15 Tooling:

Date:

Run

Start



QC:

Date: SPC (Y/N):

Date:

Stop



Sequence ID/

Work Center ID

Operation Description

Set Up/ Run Hours

Tool ID

Tool #

Plan Code

Accept Qty

Reject Qty

Reject Number

Insp. Stamp

Draw Nbr

Revision Nbr

D212-664-241

Rev D

100



DC

Document Control

DOCUMENT CONTROL

Memo 0.00

CHG003

S 10-07-20

for BG 10/07/20

110



Packaging

Packaging

Pick Kit

0.00

Packaging

0.00

10 10-07-20

120



CNC Bend 2

CNC Alpha 160 Bender

BENDING MACHINE - CROSSTUBES

0.00

Memo

0.00

Bend tube as per Dwg D212-664-241 using CNC bender program 212-aft

10 10-07-20

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



W/O:		WORK ORDER CHANGES					
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Item ID: D212-664-201

Revision ID:

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Start Date: 7/14/2010 Start Qty: 1.00

Required Date: 7/22/2010 Req'd Qty: 1.00

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_

Accept



Cust Item ID:

Customer:

Setup Start

Stop



Run Start

Stop

Sequence ID/  
Work Center ID

150



HandFXtube

Hand Finishing Crosstubes

Operation  
Description

Crosstubes Chemical Conversion

Set Up/  
Run Hours

0.00

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

160



QC

Quality Control

QC3- Inspect Part Finish

0.00

S 10/07/22

170



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

S 10/07/22

(OK) &amp; MBS 10-07-21

(OK)

W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
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Item ID: D212-664-201

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Setup

Start



Stop



Revision ID:

Item Name: Crosstube Aft

Start Date: 7/14/2010 Start Qty: 1.00



Required Date: 7/22/2010 Req'd Qty: 1.00



Reference:

Cust Item ID:  
Customer:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_

Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_

Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center ID

180

Operation  
Description

Outsource process - NDT per QSI038 4.1

Set Up/  
Run Hours

0.00

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

Outsource2

Outsource process - NDT

Memo

Liquid Penetrant Inspection as per QSI 038

Issue P/O: 12307

LPI as per ASTM 1417 Level 2

Attach copy of NDT results to work order

190



Packaging

Packaging

Receive &amp; Inspect for Damage &amp; Mat'l Certs

Packaging

0.00

Memo

0.00

Ensure copy of NDT results attached to work order.

CL 10/12/21 (1)

LW 10/12/21 (1)

200



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

Inspect for damage &amp; ensure results are as per Dwg D212-664-241

ML 10 07 26 (1)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Required Date: 7/22/2010 Req'd Qty: 1.00



Reference:

Cust Item ID:

Customer:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Setup Start

Stop

Run Start

Stop

Sequence ID/

Work Center ID

210



SprayPaint

Spray Painting

Operation

Description

Spray Painting per QSI005 4.2

SprayPaint

Set Up/  
Run Hours

0.00

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

220

QC



Quality Control

QC14- Inspect Spray Paint

0.00

Memo

Then, Wrap in plastic bag to protect from scratches

85 10-07-27

M 10 07 27 (1)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
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Item ID: D212-664-201

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Revision ID:

Item Name: Crosstube Aft

Start Date: 7/14/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 7/22/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/

Work Center ID

230



Operation

Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

Crosstubes

0.00

Crosstubes

Memo

0.00

Crosstubes

1- Lightly scuff the bonded area using a 320 grit sand paper and clean the area with 41058 wash 'n' wipe

2-Install supports with magnobond as per QSI 015. Adhere for 12 Hrs

A/R 6398 Magnobond Batch: 114158

Expiry Date: 01/2011

3-Install clamps as per Dwg D212-664-241. Torque clamps to 80-100 in lb.

240



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

8/10/2011

Memo

0.00

10

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Item ID: D212-664-201

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Setup Start



Revision ID:

Item Name: Crosstube Aft

Start Date: 7/14/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 7/22/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_

Tooling: \_\_\_\_\_

Date: \_\_\_\_\_

Run

Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_

SPC (Y/N): \_\_\_\_\_

Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
Description

280



QC

Quality Control

QC21- Final Inspection - Work Order Release

Set Up/  
Run Hours

0.00

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

10/09/30/10

10-7-29

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

# Picklist Print

Wednesday, July 14, 2010 8:24:28 AM

Page 1

Work Order ID: 60556



Parent Item: D212-664-201



Parent Item Name: Crosstube Aft

Start Date: 7/14/2010

Required Date: 7/22/2010

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:E 04.02.16 Reformat K/DS

IPP Rev:F 06-03-29 Remove Coments on Pick List JLM

IPP Rev:G 07-04-30 As per Rev C JLM

IPP Rev:H 08-05-22 up date Qty of rubber cushion DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D212-664-201TRN



Manufactured

No

110

Each

2.0000

1

1

Crosstube Turning Detail

Location	Loc Qty	Loc Code
----------	---------	----------

LG

2

59857

1

59858

1

D3595-063-530



Manufactured

No

230

Each

109.0000

2

2

RUBBER CUSHION

Location	Loc Qty	Loc Code
----------	---------	----------

FP

72

50030

12

51776

60

LG

37

59581

37

D2940-1



Manufactured

No

230

Each

33.0000

2

Support

Location	Loc Qty	Loc Code
----------	---------	----------

LG

33

45203

1

47748

12

57338

20

B-60529 MB 10-07-20

ML 10-07-28

ML 10-07-28

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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# Picklist Print

Wednesday, July 14, 2010 8:24:28 AM

Page 2

Work Order ID: 60556



Parent Item: D212-664-201



Parent Item Name: Crosstube Aft

MS21920-28



Purchased

No

230

Each

121.0000

4

4

Start Date: 7/14/2010

Start Qty: 1.00

Required Date: 7/22/2010

Required Qty: 1.00

Clamp(per MIL-DTL-8783C)

10-07-28

D3428-1



Manufactured

No

250

Each

8.0000

1

1

10-17-2988

MS21042L6



Purchased

No

250

Each

204.0000

6

6

10-17-2988

AN960JD616



NAS1149D0663J Purchased

No

Location

Loc Qty

Loc Code

ST056

Loc Qty

Loc Code

60133

Loc Qty

Loc Code

ST300

Loc Qty

Loc Code

111578

Loc Qty

Loc Code

114495

Loc Qty

Loc Code

Nut

Washer

Purchased

No

250

Each

0.0000

18

18

10-17-2988

Wednesday, July 14, 2010 8:24:28 AM

Shop Packet Print

Page 2

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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# Picklist Print

Wednesday, July 14, 2010 8:24:28 AM

Page 3

Work Order ID: 60556



Parent Item: D212-664-201



Parent Item Name: Crosstube Aft

Start Date: 7/14/2010

Required Date: 7/22/2010

Start Qty: 1.00

Required Qty: 1.00

AN6-40A



Bolt

Purchased No

250 Each

75.0000

4

4



10/7/29 5

Location

ST343

Loc Qty

75

Loc Code

112828

25

50

114283

250 Each

56.0000

2

2



10/7/29 5

Location

ST344

Loc Qty

56

Loc Code

112805

6

50

113288

AN6-41A



Bolt

Purchased No

250 Each

Wednesday, July 14, 2010 8:24:28 AM

Shop Packet Print

Page 3

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

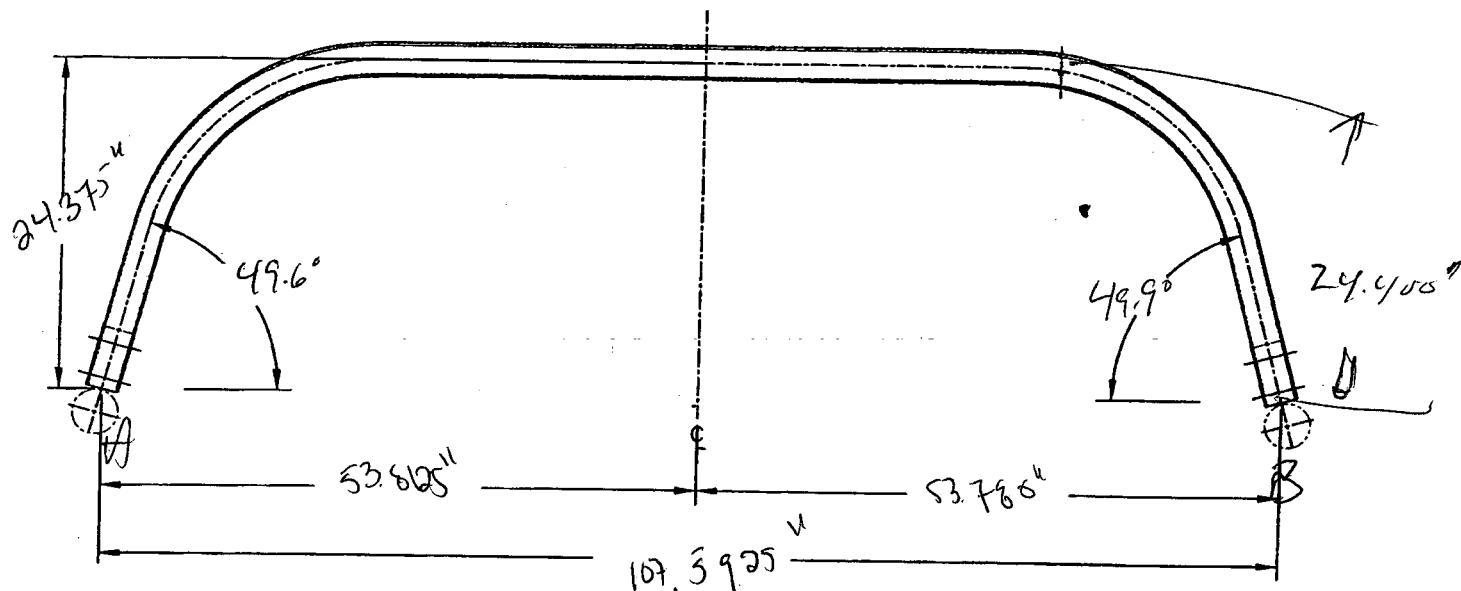
Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DART AEROSPACE LTD	Work Order:	60556
Description: Crosstube High Aft (205/212)	Part Number:	D212-664-201
Inspection Dwg: D212-664-241 Rev: D		Page 1 of 1

Required Dimension	Min	Max
Height	24.17	24.43
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.70



Comments

QC15 Inspection	
Date	10/12/08

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	07.05.08	Dimensions updated per Dwg rev. C	KJ/JLM	
C	10.04.01	Dwg Rev updated	KJ	J

W/O:		WORK ORDER CHANGES					
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NOTE: Date & initial all entries

8 7 6 5 4 3 2 1

Item	Qty -241	Qty -241B	Part Number	Description
1	X		D212-664-241	CROSSTUBE ASSEMBLY (205/212 HIGH AFT)
2		X	D212-664-241B	CROSSTUBE ASSEMBLY (214 HIGH AFT)
3	1	1	D6006-129	CROSSTUBE
4	2	2	D2940-1	SUPPORT
5	4	4	D3595-063-530	RUBBER CUSHION
6	4	4	MS21920-28	CLAMP (OR MS21920-30)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6006-129  
FINISHED LENGTH = 124.362±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: D212-664-241 = 44.2 lbs (PER IIN-D212-664)  
D212-664-241B = 44.2 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 5 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2940-1 SUPPORT USING 0.03" TO 0.08" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2940-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-28 CLAMPS (OR -30) WITH D3595-063-530 RUBBER CUSHIONS TO SECURE THE D2940-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 00534

*PL 10-7-15*

RELEASED  
2009-10-29

D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -241B (ZN D4-2, B4-2); REMOVED REF & ADD TOLERANCES (ZN D8-3 & C4-3; C6-3 & A8-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	09.09.30
C	REMOVE -1009 ABRASION STRIP; ADD MAGNOBOND 6398. CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	PH	00.12.12
REV.	DESCRIPTION	BY	DATE
DESIGN	<u>PH</u>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	<u>PH</u>	DRAWING NO.	REV. D
MFG. APPR.	<u>PH</u>	D212-664-241	SHEET 1 OF 4
APPROVED	<u>PH</u>	TITLE	SCALE
DE APPR.	<u>PH</u>	CROSSTUBE ASS'Y (205/212 HI AFT)	NTS
DATE	09.09.30	COPYRIGHT © 2009 BY DART AEROSPACE LTD ALL RIGHTS RESERVED. THIS DRAWING IS THE PROPERTY OF DART AEROSPACE LTD. IT IS TO BE USED FOR THE SPECIFIED PURPOSE ONLY AND IS NOT TO BE COPIED OR DISCLOSED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

8 7 6 5 4 3 2 1

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

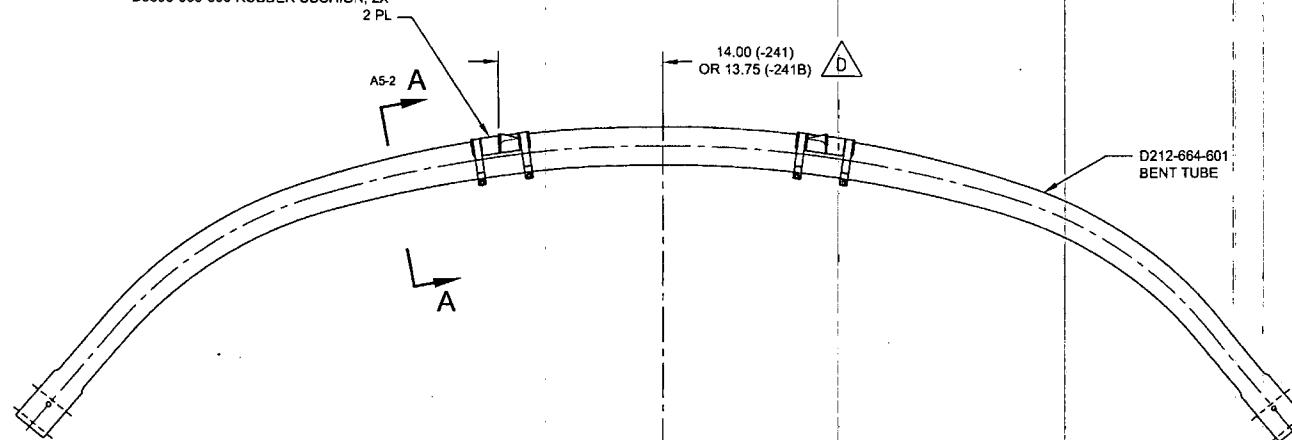
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

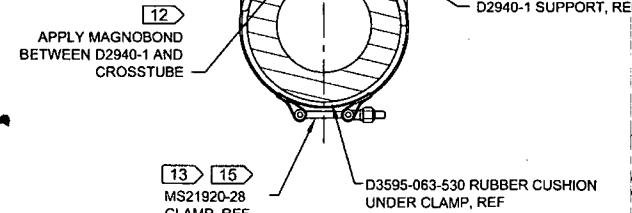
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

12 13 15  
D2940-1 SUPPORT  
MS21920-28 CLAMP, 2X  
D3595-063-530 RUBBER CUSHION, 2X  
2 PL



**D212-664-241/241B  
ASSEMBLY DETAIL**



**SECTION A-A** D6-2  
SCALE 4X

DESIGN	PH	DART AEROSPACE LTD
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED	9	DRAWING NO.
MFG. APPR.	10	D212-664-241
APPROVED	10	REV. D
DE APPR.	10	SHEET 2 OF 4
DATE	09.09.30	TITLE
		CROSSTUBE ASS'Y (205/212 HI AFT) NTS

**RELEASED**  
2009-10-30

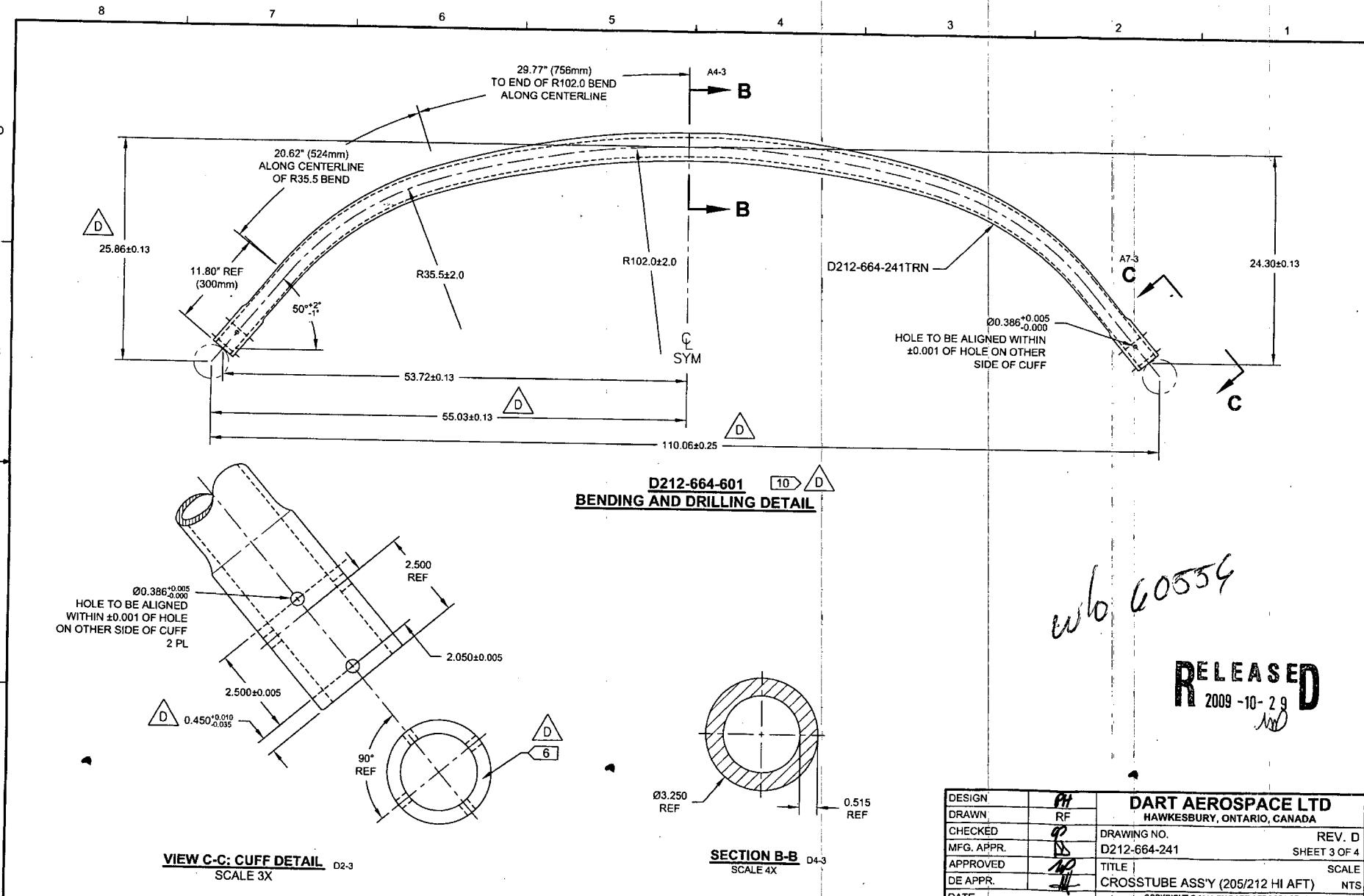
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN	A	DART AEROSPACE LTD
DRAWN	RF	HAWKSLEY, ONTARIO, CANADA
CHECKED	RF	REV. D
MPG. APPR.	RF	DRAWING NO. D212-664-241
APPROVED	RF	SHEET 3 OF 4
DE APPR.	RF	TITLE CROSSTUBE ASS'Y (205/212 HI AFT) NTS
DATE	09.09.30	COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SHIPPED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

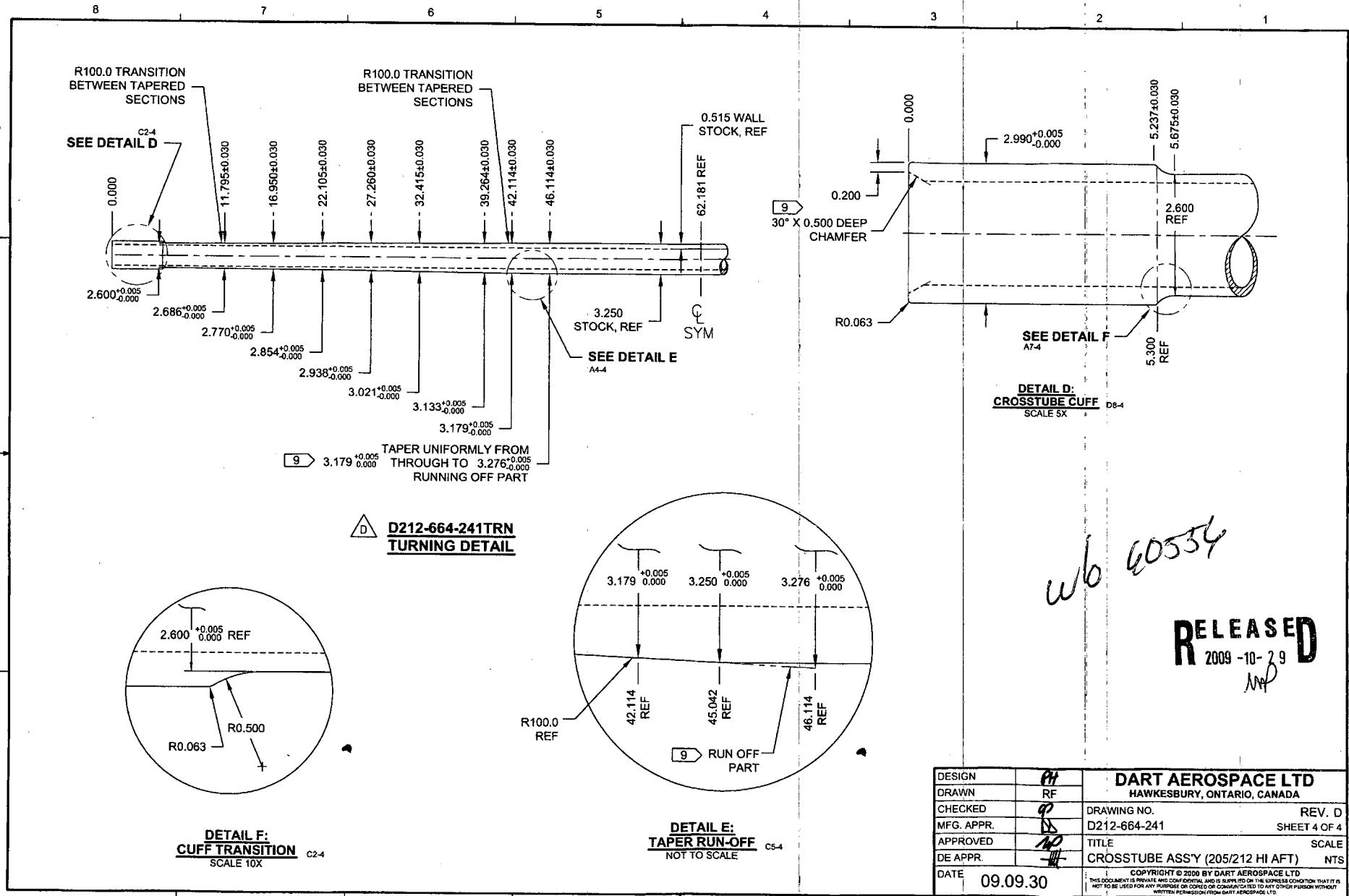
W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN	PF	DART AEROSPACE LTD
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED	99	DRAWING NO.
MFG. APPR.	DS	D212-664-241
APPROVED	NO	REV. D
DE APPR.	W	SHEET 4 OF 4
DATE	09.09.30	SCALE
		CROSSTUBE ASS'Y (205/212 HI AFT) NTS

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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



## LIQUID PENETRANT TEST REPORT

P- 15183

CLIENT DART AEROSPACE DATE Jul 22-2010 PAGE 1 OF 1  
 ATTENTION LINDA/CHANTEL TIME AM  PM   
 ADDRESS 1270 ABELODEEN ST ACUREN JOB NO. 188-10-0801  
HAWKES BURY ON. PO/WO NO. 1123091  
K0A 1K7 WORK LOCATION HAWKES BURY - ON, SHOP  
 PROJECT F. P. I. ON CROSS TUBES. ACCEPTANCE STD. ASTM 1417 REV./DATE 2007  
 ITEM(S) EXAMINED 5 UNITS.

JOB DESCRIPTION	PROCEDURE NO. LT-002 REV./DATE	TECHNIQUE NO. LT- <del>002</del> REV./DATE
PART NO.	MATERIAL <u>Aluminum</u> THICKNESS <u>—</u>	
SCOPE	<u>WET FLUORESCENT LIQUID PENETRANT INSPECTION</u> <u>CARRIED OUT 100% EXTERNAL.</u>	
<b>TEST DETAILS</b>		
METHOD	<input checked="" type="checkbox"/> FLUORESCENT <input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH <input type="checkbox"/> SOLVENT REMOVABLE <input type="checkbox"/> POST EMULSIFIED
FAMILY BRAND	<u>MAGNAFLUX</u>	
PENETRANT	2L67	MINIMUM DWELL TIME <u>45/60</u> MIN.
PENETRANT REMOVER	<u>1420</u>	MINIMUM DRY TIME <u>&gt;10</u> MIN.
DEVELOPER	<u>SKD 52</u>	MINIMUM DWELL TIME <u>10</u> MIN.
DEVELOPER TYPE	<input checked="" type="checkbox"/> NON AQUEOUS <input type="checkbox"/> AQUEOUS <input type="checkbox"/> DRY	LIGHT METER S/N <u>1098866</u> CAL DUE DATE <u>OCT 19 2010</u>

SURFACE CONDITION	<input type="checkbox"/> AS GROUND <input checked="" type="checkbox"/> AS WELDED	<input checked="" type="checkbox"/> MACHINED <input type="checkbox"/> SHOT BLASTED <input type="checkbox"/> CLEAN BARE METAL
SURFACE TEMPERATURE	<input type="checkbox"/> < -4°C/20°F <input type="checkbox"/> -4°C/20°F TO 10°C/50°F	<input type="checkbox"/> 10°C/50°F TO 52°C/125°F <input type="checkbox"/> > 52°C/125°F
RESULTS- ( <input type="checkbox"/> METRIC <input checked="" type="checkbox"/> IMPERIAL )	<p><u>1 - CROSS TUBE, W.O. 60557</u> ✓</p> <p><u>1 - CROSS TUBE, W.O. 60556</u> ✓</p> <p><u>1 - CROSS TUBE, W.O. 60449</u> ✓</p> <p><u>1 - CROSS TUBE, W.O. 60450</u> ✓</p> <p><u>1 - CROSS TUBE, W.O. 60257</u> ✓</p> <p style="text-align: right;"><u>10.07.26</u></p>	

## Scope of Services

The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

## Standard of Care:

In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

## SIGNATURES

CLIENT REPRESENTATIVE	<u>Jason Murdoch</u> PRINT: <u>Jason Murdoch</u>	<u>R. Miller</u> SIGNATURE	DTR # <u>E 22417</u>
TECHNICIAN (SIGNATURE):	<u>Mike Stevenson</u>		REPORT
NAME (PRINT):			REVIEWED BY:
CGSB LEVEL	<u>1<sup>st</sup> TECHNICIAN</u>	<u>2<sup>nd</sup> TECHNICIAN</u>	NAME <u> </u> INITIALS <u> </u>
CGSB REG. NO.	<u>66006</u>	<u>SNT LEVEL</u>	CGSB REG. NO. <u> </u>

WHITE = CLIENT COPY CANARY = OFFICE COPY PINK = TECHNICIAN COPY GOLD = OFFICE COPY